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CIA-RDP86-00513R000929610012-1

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CIA-RDP86-00513R000929610012-1"

Levina, R. Ya.

USER/ Chemistry - Synthesis

Card 1/1 Pub. 22 - 28/54

Authors : Levina, R. Ya.; Shusherina, N. P.; Lurye, N. Yu.; Orlova, N. D.

Title : Cyanethylated ketones in the synthesis of unsaturated lactones. Delta lactones with semicyclic double bond

Periodical : Dok. AN SSSR 106/2, 279-282, Jan 11, 1956

Abstract : The synthesis of delta-lactones with semicyclic double bond from basic ketones (diisopropyl- and methylisopropyl ketone) is described. The lactones obtained were found to have a definite semicyclic bond inasmuch as their formation was due mainly to the ketoenol regrouping of the keto acids, the enol forms of which are formed only as result of the isopropyl group and methyl group, respectively. The chem. properties of synthesized lactones are described. Eight references: 4 USSR, 2 USA and 2 French (1899-1955).

Institution : Moscow State University (a. M. V. Lomonosov

Presented by: Academician B. A. Kazanskly, July 16, 1955

SHUSHERINA, N.P.; SYR'YM, M.Yu.; LEVINA, R.YA.

Cyano ethylated ketones in the synthesis of unsaturated δ -lactones.
A new method of α -pyrone synthesis. Dokl. AN SSSR 109 no.1:117-119
J1-Ag '56. (MLBA 9:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
Predstavleno akademikom A.N. Nesmeyanovym.
(Pyrone)

LEVINA, R.Ya.; KUZ'MIN, M.G.; SHABAROV, Yu.S.

A new method for the synthesis of cyclobutane hydrocarbons.
Vest.Mosk.un. 12 no.1:170-171 '57. (MLHA 10:8)

1.Moskovskiy universitet, Kafedra organicheskoy khimii.
(Alicyclic compounds)

LEBEDEVA, M.N.; YEFREMOVA, S.A.; KOSTIN, V.N.; LEVINA, R.Ya.

Bacteriostatic properties of -mercurated alcohols and their
alkyl ethers. Vest.Mosk.un.Ser.mat.,mekh.,astron.,fiz., khim.
12 no.3:149-158 '57. (MIRA 11:3)

1.Kafedra mikrobiologii i Moskovskogo ordena Lenina meditsinskogo
instituta i Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo
universiteta.

(Alcohol) (Ethers) (Bacteriostasis)

LEVINA, R.Ya.; KAYKARIS, P.A.; TRESHCHOVA, Ye.G.

Synthesis of hydrocarbons. Part 62: Synthesis of alkenes and alkanes of a branched structure. Vest.Mosk.un.Ser.nat.,mekh., astron.,fiz., khim. 12 no.3:165-168 '57. (MIRA 11:3)

1.Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Paraffins) (Olefins)

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929610012-1

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CIA-RDP86-00513R000929610012-1"

LEVINA, R.Ya.; SHARAROV, Yu.S.; SHANAZAROV, K.S.; TRESHCHOVA, Ye.G.

Synthesis of hydrocarbons. Part 63: Arylcyclopropanes. Vest. Mosk.
un. Ser. mat., mekh., astron., fiz. khim., 12 no.5:145-150 '57.
(MIRA 11:9)

1.Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.
(Cyclopropane)

SKVARCHENKO, B.R.; LEVINA, R.Ya.; CHERVONEVA, L.A.

Synthesis of aromatic hydrocarbons. Part 6: Hydrocarbons of tetraline and naphthalene series. Vest. Moskl. un. Ser. mat., mekh., astron., fiz. khim., 12 no.5:177-180 '57. (MIRA 11:9)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.
(Tetraline) (Naphthalene)

SHUSHKINA, N.P.; LEVINA, R.Ya.; LUR'YE, M.Yu.

Chemistry of δ -lactones. Vest. Mosk. un. Ser. nat., mekh., astron.
fiz., khim. 12 no. 6:173-198 '57. (MIRA 11:10)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo
universiteta.

(Lactones)

Levin, R. Ya.

Reaction of cyclopropane hydrocarbons with mercuric salts. VI. Organomercury compounds from phenylcyclopropane. R. Ya. Levin, V. N. Kostin, and V. A. Tarkovskii (State Univ., Moscow). *Zhur. Obshch. Khim.* 27, 857-8 (1957); *cf. C.A.* 51, 9652b. Shaking 100 g. Hg(OAc)₂ with 45 g. phenylcyclopropane (I) in 450 ml. H₂O 12 hrs. gave after extrn. with Et₂O and distn. of the ext. 71% PhCH(OH)CH₂CH₂HgOAc, m. 65-6°, this in hex. cooled aq. soln. was treated with KBr, KI, KCN, and K₂CN, but only PhCH(OH)CH₂CH₂HgCNS, m. 61°, was isolated. Treatment of the acetate with Na stannite gave Hg(CH₂CH₂CH(OH)Ph), m. 77-8° (aq. Me₂CO). Shaking 37 g. Hg(OAc)₂ and 10 g. I in dry MeOH 12 hrs. gave 50% PhCH(OMe)CH₂CH₂HgOAc, oil. This with approximate K salt gave: PhCH(OMe)CH₂CH₂HgCl, m. 80°; PhCH(OMe)CH₂CH₂HgBr, m. 80°; PhCH(OMe)CH₂CH₂HgI, m. 80°; PhCH(OMe)CH₂CH₂HgCNS, m. 84°. To PhCH(OMe)CH₂CH₂HgCl, 30 g. Mg was added dropwise 30 g. PhCH(OMe)CH₂CH₂HgCl in Et₂O; after refluxing 1 hr. and decanting with aq. NaOH there was obtained EtHgCH₂CH₂CH(OH)Ph, oil, which heated in vacuo symmetrized and yielded 51% 1,4-Hg and 41% 1,2-Hg, Hg(CH₂CH₂CH(OH)Ph)₂. When sodium PhCH(OMe)CH₂CH₂ was used, male Hg deriv. and the next refluxed 12 hrs. there were obtained Et₂Hg and 48% EtPhCH(OH)Ph, identified as the 3,5-dinitrobenzoate, m. 67-8°. G. M. Kosolapov.

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Instr: 4E1J/4E3d/4E2c(j)

1. *Quin*, R16; *Kin*, D11; *Quin*, I. N. Chelova N.O;

lms with 2 vols. concd. HCl and dry distil. yielding 30%
methylethylidene anhydride (b.p. 121° by 137° by 141°
at 1 mm. Hg). Heating to decomposition with 10 g.
1 and 0.1 g. pure and in anhydride 20 min. at 100° gave
vinylpyridene 64% unreacted 1 and 14% based on con-
verted 1. 1-methyl-2-ethyltetrahydrophthalic anhydride (b.p.
141° by 157° by 167° by 179°) similarly 1 and 2,3-di-
methyl-1,2-butadiene gave 76.4% 1,4-dimethyl-2-ethyl-
1,2,3,6-tetrahydrophthalic anhydride (b.p. 141° by 161°
by 169° by 176°). The former anhydride (8.1 g.) heated
slowly with 2 g. P₂O₅ 2 hrs. until gas evolution ceased gave
51% *o*-ECl₂Me, b.p. 165-6°, 1.5633, 0.8873. The latter
anhydride similarly gave 64% 1,2,6-trimethyl-5-ethylbenzene,
b.p. 288-9°, l.p. -13.7° to -13.0°, 1.6076, 0.8888.

G. M. Rosolapoff

TRECHLORE 6

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4E4

4E3d

4E2c)

2 mag

SKVARCHENKO, V.R.; LEVINA, R.Ya.; KUZ'MIN, M.G.

Synthesis of hydrocarbons. Part 60: Ethyl benzene homologues prepared from the adducts of alkadienes with methylethylmaleic anhydride. Zhur.ob.khim. 27 no.7:1784-1787 J1 '57. (MIRA 10:10)

1.Moskovskiy gosudarstvennyy universitet.
(Benzene) (Olefins) (Maleic anhydride)

7
 * Reaction of cyclopropane hydrocarbons with salts of mer-
 curic mercury. VII. Thermal decomposition of products
 of asymmetrization of γ -mercurated alcohols. P. Ya.
 Levison, V. N. Kozlov and V. A. Tarakanov (State Univ.
 Moscow) *Zh. Obshch. Khim.* 27, 300 (1957),
 of C.A. 52, 3713. Heating $(\text{PrCH(OH)CH}_2\text{CH}_2\text{Hg})_2$
 to 120-130° at 15 mm. gave a distillate of Hg and a mixt. of
 $\text{PrCH(OH)CH}_2\text{CH}_2\text{Hg}$ and PrCOH . Similar heating to 190-200° of
 $(\text{Me}_2\text{CHCH(OH)CH}_2\text{CH}_2\text{Hg})_2$ gave Me_2CHOH and Me_2CO
 and Hg with apparently 1-propanol. The 1st substance
 apparently yields free radicals the HO group of which is the
 source of H for the final products. The 2nd compd. in its
 decompn. yields tertiary free radicals which are cleaved
 at the central C atom to yield the above products with
 probably intermediacy of Me_2CO , C_3H_6 , and H.

G. M. Kosolapoff

Distr: 4E4J/4E2c(j)/
 4E3d

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SHUSHMERINA, N.P.; LUR'YE, M.Yu.; LEVINA, R.Ya.

δ -lactones. Part 10: 9,10-dibromooctahydrocoumarin and its reactions.
Zhur. ob. khim. 27 no.8:2250-2255 Ag '57. (MLRA 10:9)

1. Moskovskiy gosudarstvennyy universitet.
(Lactone) (Coumarin)

SHUSHMERINA, M.P.; LEVINA, R.Ya.; KONDRAT'YEVA, L.B.

γ-lactones. Part 11: 9,10-dibromohexahydrocoumarin and its reactions. Zhur. ob. khim. 27 no.8:2255-2260 Ag '57. (MLBA 10:9)

1. Moskovskiy gosudarstvennyy universitet.
(Coumarin) (Lactones)

AUTHOR: LEVINA, P., SHUSHERINA, N.P., LUR'YE, M.YU. PA - 2762
TITLE: δ -Lactones. Transformation of the Dibromides of Unsaturated δ -Lactones into Bromine Substituted δ -Ketone Acids and their Ethers.
 (6-laktony. Prevrasheheniye dibromidov nepredel'nykh δ -laktonov v bromozameshchennyye δ -ketonkisloty i ikh efiry, Russian)
PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 4, pp 820 - 823 (U.S.S.R.)
 Received: 6 / 1957 Reviewed: 7 / 1957
ABSTRACT: In their previous report the authors for the first time described the reaction between the dibromide of unsaturated δ -lactones, i.e. 5,6-dibrom-5,6-dimethyltetrahydro- α -pyron and water, namely, the binding with water with opening of the lactone cycle and separating of a molecule of hydrogen bromide. This leads to the formation of δ -brom- γ -acetyl valeric acid with quantitatively correct yield. The structure of this acid was checked by counter-analysis, i.e. bromizing of the γ -acetyl valeric acid by dioxandibromide. In the present work it is shown that reaction between the dibromides of the unsaturated lactones and water may serve as a general method of preparing α - or ϵ -bromine-substitute δ -ketone acid. In this way the following preparations, which have hitherto not been described in publications were produced: 4-bromine hexanon-5-carbonic acid, 6-bromine-4,4-dimethylhexanon-5-carbonic acid, 6-bromine-4,6,6-trimethylheptanon-5-carbonic acid, and 2-bromine-2-(8 carboxyethyl)-cyclopentanone. Structure formulae are given. In the course of their

Card 1/2

PA - 2762

δ -Lactones. Transformation of the Dibromides of Unsaturated δ -Lactones into Bromine Substituted δ -Ketone Acids and their Ethers.

further investigation of the reactivity of dibromine lactons they first studied their reaction with ethanol. Here the binding of alcohol is effected by the opening of the lactone cycle, the separating of a molecule from hydrogen bromide, and ethyl ethers of γ - or ε -substituted δ -ketone acids. By means of this reaction the ethyl ethers hitherto not described in publications of the above mentioned bromine-ketone acids were obtained. Also in this case structure was checked by means of a counter-synthesis of one of them: ether XI was obtained by the action of dioxandibromide on ethyl ether of γ -acetyl butiric acid. In the experimental part each single reaction together with conditions and results was described.

(6 groups of chemical formulae, 2 tables, 5 citations from Slav publications)

ASSOCIATION: Moscow State University "M.V.LOMONOSOV"

PRESENTED BY: A.N.NESMEYANOV, Member of the Academy

SUBMITTED: 23.11.1956

AVAILABLE: Library of Congress

Card 2/2

LEVIN R. Ya.

AUTHOR SHUSHERINA N.P., LUR'YE M.Yu., LEVINA R.Ya. 20-5-39/67

TITLE δ -Lactones. Production of Acylated Butyrolactones from γ -Bromine δ -ketone acids.
(δ -laktony. Polucheniye atsilirovannykh butiraktonov iz γ -brom- δ -ketonokislota -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 5, pp 1084-1087 (U.S.S.R.)
Received 7/1957 Reviewed 8/1957

ABSTRACT In previous papers the author described the preparative method of production by interaction of dibromides of unsaturated δ -lactones with water. The present paper shows that the γ -bromine and δ -ketone acids obtained in this way go over into butyrolactones under the effect of a cold saturated solution of sodium acetate, which are acylated in position 5. Five different lactones were obtained from the corresponding acids, so that the reaction mentioned may serve as a preparative method for the production of acylated butyrolactones-. In all cases (with the exception of case I: 5-acetylbutyrolactones) also the formation of isomeric saturated 6-membered lactones (VII) can be presumed if the reaction had developed by the intermediate formation of unsaturated ketone acids. This, however, does not apply as it was shown that the unsaturated ketone acid (VII), which was synthesized particularly for this purpose, is not changed under the influence of a saturated aqueous solution of sodium acetate. The substances I-V cannot be titrated with aqueous and alcoholic solutions of alkalies, they do not discolor

Card 1/2

δ -Laktones. Production of Acylated Butyrolactones
from γ -Bromine δ -ketone Acids.

20-5-39/67

bromine water, and with the exception of substance V, they form semicarbazoles. The presence of a lactone cycle in the substances obtained was confirmed by the transformation of the substance V into the corresponding γ -oxyacid(VIII). It easily went over into the lactone V by heating, while methyl ether of the oxyacid IX did the same when heated or under the action of cold concentrated bromhydric acid. These reactions as well as the results of analysis confirm the structure of the substances I-V as being acylated butyrolactones. In the experimental part there follow several reactions with yields and constants.
(With 3 Slavic references)

ASSOCIATION Moscow State University "M.V. LOMONOSOV"
PRESENTED BY NESMEYANOV A.N., Member of the Academy
SUBMITTED 23.11.1956
AVAILABLE Library of Congress
Card 2/2

AUTHOR:
TITLE:

20-6-20/59
LEVINA, R.Ya., SHABAROV, Yu. S., DAUKSHAS, V.K. and TETENKO, N.G.
2,4-Dimethylpentadien-1,3 in the Synthesis of Alkanes with Two
Quaternary Carbon Atoms Separated by a CH_2 -Group (Ditertiary
Alkylmethanes).

PERIODICAL:

2,4-dimetilpentadien-1,3 v sinteze alkanov s dvumya chetvertich-
nymi atomami ugleroda, razdelennymi CH_2 -gruppoy (ditretichnoalkil-
metanov. Russian).
Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 6, pp 1286 - 1289
(U.S.S.R.)

ABSTRACT:

In earlier reports the authors described the method of synthesis
of ethylene-hydrocarbons with a quaternary carbon atom. It con-
sists of a reaction between alkylmagnesiumbromides and unsaturated
tertiar bromides of the allyle-type; the latter are easily pro-
duced by means of hydrobromization of dien-hydrocarbons of a rami-
tied structure with a conjugated system of double bindings. E.g.
hydrobromide of 2,4-dimethylpentadien-1,3 served as initial sub-
stance for the synthesis of 2,4-trimethylalkenes. In this paper the
authors worked out a new and easy synthe for the production of the
rather hard obtainable paraffinhydrocarbons with four quaternary
carbon atoms which are separated by a CH_2 -group, that is of the di-
tertiary alkylmethanes. Here the same initial substance was used.
The reaction mentioned is the first stage of this synthesis, where

Card 1/3

20-6-28/59

2,4-Dimethylpentadien-1,3 in the Synthesis of Alkanes with Two Quaternary Carbon Atoms Separated by a CH_2 -Group (Ditertiary Alkylmethanes).

the yield could be increased from 30 to 45 %. Furthermore, the alkenes which had already a quaternary carbon atom were transformed by the action of hydrochloric acid into saturated tertiary chloride 2-chlorine-2,4-trimethylalkanes (yield 90%). The latter were then introduced into the reaction with magnesiumorganic compounds with sublimate as a catalyzer; the products of this last stage of the synthesis were alkanes with two quaternary carbon atoms separated by a CH_2 -group. In the case of an interaction with magnesiumorganic compounds the saturated tertiary alkanes split off also hydrochloric acid and, with a yield of 50% form the initial alkanes. The latter were used for alkane-synthesis. The alkanes and alkanes were easily separated by destillation. The alkane yield amounted to from 15 - 25 % calculated according to the tertiary chloride introduced into the reaction, and to from 30 - 50 % according to that not utilized. Reactions with yields, methods, and spectroscopic constants are described. (3 tables, 6 Slavic references).

Card 2/3

AUTHORS: Levina, R.Ya., Shabarov, Yu.S., and Daukshas, V.K. SOV/55-58-1-25/33

TITLE: Synthesis of Hydrocarbons. 64. The 2,4 Dimethylpentadien - 1,3 in the Synthesis of the Alkanes With Neighboring Quaternary and Tertiary Atoms of Carbon (Sintez uglevodorodov. 64. 2,4 - dimetilpentadien - 1,3 v sinteze alkanov s sosednimi chetvertichnym i tretichnym atomami ugleroda)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, Nr 1, pp 187-191 (USSR)

ABSTRACT: The authors used a method developed some times ago (synthesis of hydrocarbons with quaternary atoms of carbon by reciprocal action of the hydrochloride of 2,4 - dimethylpentadien - 1,3 and the organic combinations containing magnesium) in order to obtain the following combinations: 2,4,4,5 - tetramethylheptene - 2; 2,4,4,5 - tetramethyloctene - 2 and 2,4,4 - trimethyl - 5 - ethylhepten - 2. By hydrogenation of these stuffs the authors obtained: 2,4,4,5 - tetramethylheptan; 2,4,4,5 - tetramethyloctane; 2,4,4 - trimethyl - 5 ethyl heptan. There are 10 references, 7 of which are Soviet, and 3 American.

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: April 20, 1957

Card 1/1

5(3)
 AUTHORS: Skvarchenko, V.R., Levina, R.Ya., SOV/55-58-5-28/34
 Chervoneva, L.A.
 TITLE: Synthesis of Aromatic Hydrocarbons. VIII. Alkyltetralins
 (Sintez aromaticeskikh uglevodorodov. VIII. Alkiltetraliny)
 PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki,
 astronomii, fiziki, khimii, 1958, Nr 5, pp 187 - 190 (USSR)
 ABSTRACT: From adducts of isopen and 2.3-dimethyl butadiene-1.3 with
 the anhydrid of Δ^1 -cyclohexendicarboxylic acid there was ob-
 tained by heating with phosphorus pentoxyd the 6-methylte-
 tralin (47 %) and 6.7-dimethyltetralin (59 %). The anhydrids
 of 2-methyl- and 2.3-dimethyl- Δ^2 -octalin-dicarboxylic-9.10
 acid and of the 2-methyl- Δ^2 -octalin-dicarboxylic-9.10 acid
 are described for the first time. - There are 10 references,
 4 of which are Soviet, 5 American, and 1 German.
 ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)
 SUBMITTED: December 28, 1957

Card 1/1

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5(3)
 AUTHORS: Shusherina, N.P., Levina, R.Ya., SOV/55-58-5-29/34
 Dmitriyeva, N.D.
 TITLE: δ -Lactones. XV. 5.6-Cycloalkanopyridones -2 (δ -laktony.
 XV. 5,6-tsikloalkanopiridony -2)
 PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki,
 astronomii, fiziki, khimii, 1958, Nr 5, pp 191 - 192 (USSR)
 ABSTRACT: From corresponding α -pyrones there were obtained 5.6-cyclo-
 pentanopyridone -2 not described in the literature, and
 5.6-cyclohexanopyridone -2 (5,6,7,8 - tetrahydroquinolone -2).
 It was stated that 5.6-cyclohexano- α -pyrone cold or heated
 with secondary amines does not react.
 There are 4 references, 1 of which is Soviet, 1 American, and
 2 are German.
 ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)
 SUBMITTED: December 31, 1957

Card 1/1

5(3)

AUTHORS: Levina, R.Ya., Sharabov, Yu.S., Potapov, V.K. SOV/55-58-5-31/34

TITLE: Cyclopropanes and Cyclobutanes. IV. A Cleaning Method for Arylcyclopropanes Which Have Been Obtained According to the Kizhner Method. Short Note. (Tsiklopropy i tsiklobutany. IV. Metod ochistki ariltsiklopropanov, poluchayemykh po reaktsii Kizhnera. Kratkoye soobshcheniye)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 5, pp 201 - 204 (USSR)

ABSTRACT: It was stated that phenylcyclopropane changes for no temperature under the influence of 2,4 - dinitrobenzenesulfonylchloride, while propenylbenzene forms a crystalline substance with the combination mentioned above. This fact was used in order to develop a method for purifying phenylcyclopropane from propenylbenzene. - There are 9 references, 5 of which are Soviet, and 4 American.

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: July 28, 1958

Card 1/1

LEVINA, R Ya

79-28-5-54/69

AUTHORS: Lur'ye, M. Yu., Trubnikov, I. S., Shusherina, N. P.,
Deyina, R. Ya

TITLE: δ -Lactones (δ -Laktony). XII. Synthesis and Properties of
6-Phenyl-3,4-Dihydro- α -Pyrone (Sintez i svoystva 6-fenil-3,4-
-digrido- α -pirona)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5,
pp. 1351 - 1355 (USSR)

ABSTRACT: In previous publications a synthesis of unsaturated δ -lac-
tones (3,4-dihydro- α -pyrones) from monocyano-ethylated ali-
phatic and alicyclic ketones (Reference 1-4) was described.
In the present paper the unsaturated lactone, 6-phenyl-
-3,4-dihydro- α -pyrone (formula III), was synthesized this way
(see scheme 1). From references, it is known that the cyano-ethyla-
tion of acetophenone either leads to the tricyano-ethylated
derivative (Reference 5) or to the mixture of monocyano-
ethylated (13%) and dicyano-ethylated acetophenone (Reference
6). The authors succeeded in finding conditions on which this
treatment makes it possible to synthesize the γ -benzoylbutyro-

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79-28-5-54/69

6-Lactones. XII. Synthesis and Properties of 6-Phenyl-3,4-Dihydro- α -
Pyrone

-nitrile(I)(28-35%) only. The hydrolysis of nitrile (I) in γ -benzoylbutyric acid (II) and its conversion to lactone (III) occurred with respective yields of 100 and 75%. It was further shown that on the action of an equimolar amount of bromine on the lactone (III) a liquid dibromide (IV) forms which, similar to the earlier described dibromolactone (IV), converts on the treatment with water to the γ -bromo- γ -benzoylbutyric acid (VI) in a yield of 86.5%. In the vacuum distillation in a dry air current the dibromolactone converts to the 6-phenyl- α -pyrone(phenylcoumalin,V) on which occasion the initial product, the unsaturated σ -lactone (III), is reforming. However, thus in the distillation of dibromolactone (IV) the cleavage of two molecules of hydrogen bromide leads to the formation of α -pyrone (V), while the cleavage of bromine causes the formation of the initial lactone (scheme 2). There are 14 references, 6 of which are Soviet.

Card 2/3

79-28-5-54/69

δ -Lactones. XII. Synthesis and Properties of 6-Phenyl-3,4-Dihydro- α -Pyrone

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: April 15, 1957

Card 3/3

SOV/51-5-5-9/23

AUTHORS: Treshchova, Ye.G., Tatevskiy, V.M., Skvarchenko, V.R. and Levina, A.Ya.

TITLE: Raman Scattering Spectra of Hydrocarbons of Various Types. (Spektry kombinatsionnogo rassseyaniya uglevodorodov razlichnykh klassov).
V. Raman Scattering Spectra of Certain Bi- and Tri-Cyclic Diene Hydrocarbons (V. spektry kombinatsionnogo rassseyaniya nekotorykh bi- i tritsiklicheskiy diyenovykh uglevodorodov).

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 5, pp 553-560 (USSR)

ABSTRACT: The Raman spectra of the following bi-cyclic diene hydrocarbons with isolated and conjugated bonds were obtained: 2,2'- and 1,1'-dicyclohexenyl, 2,2'- and 1,1'-dicyclopentenyl, and dicyclopentadiene. 2,2'-dicyclohexenyl and 2,2'-dicyclopentenyl were synthesized by the action of Mg on 3-chlorocyclohexene-1 and 3-chlorocyclopentene-1, respectively. 1,1'-dicyclohexenyl and 1,1'-dicyclopentenyl were obtained by dehydration of the corresponding pinacols (pinacones). Dicyclopentadiene of technical grade was purified by double washing with a concentrated alkaline solution, by washing with water, drying and vacuum distillation. The boiling point, vapour pressure, refractive index and density at 20°C, etc., are given for all the five hydrocarbons in Table 1. The

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SOV/51-5-5-9/23

Raman Scattering Spectra of Hydrocarbons of Various Types. V. Raman Scattering Spectra of Certain Bi-Cyclic and Tri-Cyclic Diene Hydrocarbons

Raman spectra of 2,2'-dicyclopentenyl and of dicyclopentadiene were obtained using a glass "Shteynkhel'" spectrograph, as described in Refs 1, 2. The Raman spectra of 2,2'-dicyclohexenyl (Fig 1 curve v), 1,1'-dicyclohexenyl (Fig 1 curve a) and of 1,1'-dicyclopentenyl (Fig 1 curve b) were obtained using a triple-prism glass spectrograph ISP-51 with photoelectric recording. Table 2 gives the values of the Raman frequencies and intensities of all the five hydrocarbons. Reproducibility of the results was satisfactory and the differences between individual measurements of the strong lines did not exceed $\pm 3\%$ (see Fig 2). The results obtained are discussed and interpreted in detail. As part of the discussion the authors quote the $\nu_{C=C}$ frequencies and intensities of various dienes with isolated and conjugated double bonds (Table 3). There are 2 figures, 3 tables and 12 references, 11 of which are Soviet and 1 German.

SUBMITTED: December 31, 1957

Card 2/2 1. Hydrocarbons--Spectra 2. Raman spectroscopy 3. Spectrophotometers
--Performance

LEVINA, R.Ya.; VIKTOROVA, Ye.A.

Methods for the synthesis of acetylene hydrocarbons. Reakts.
org.socd. 7:7-132 '58. (MIRA 12:5)
(Hydrocarbons)

SKVARCHENKO, V.R.; LEVINA, R.Ya.; CHERVONEVA, L.A.

Synthesis of aromatic hydrocarbons. Part 8: Alkyltetralins. Vest.
Mosk.un. Ser.mat., mekh., astron., fiz., khim. 13 no.5:187-190 '58.
(MIRA 12:4)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo uni-
versiteta.

(Naphthalene)

SHUSHERINA, N.P.; LEVINA, R.Ya.; DMITRIYEVA, N.D.

-lactones. Part 15: 5,6-cycloalkano-2-pyridones. Vest.Mosk.un.
Ser.mat.mekh.astron.fiz.,khim. 13 no.5:191-192 '58. (MIRA 12:4)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo uni-
versiteta.

(Pyridone)

LEVINA, R.Ya.; SHABAROV, Yu.S.; POTAPOV, V.K.

Cyclopropanes and cyclobutanes. Part 4: Method for purification of arylcyclopropanes, produced by the Kishner reaction. Vest.Mosk.un. Ser.mat.,mekh.,astron.,fiz.,khim. 13 no.5:201-203 '58.

(MIRA 12:4)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Cyclopropane)

AUTHORS: Levina, R. Ya., Viktorova, Ye. A. (Moscow) SOV/74-27-2-2/5

TITLE: Progress in Synthesis of Dienes With an Accumulated Double Bond (Allenes) (Uspekhi sinteza diyenovykh uglevodorodov s kumulirovannoy sistemoy dvoynykh svyazey (allenov))

PERIODICAL: Uspekhi Khimii, 1958, Vol. 27, Nr 2, pp. 162 - 178 (USSR)

ABSTRACT: In this article a survey of publications is given on diene syntheses according to different methods. Corresponding to the methods the papers have been arranged into several chapters:

- 1) The dehalogenation of saturated and unsaturated halides
- 2) The splitting off of hydrogen halide from saturated and unsaturated halides
- 3) The dehydration of unsaturated alcohols
- 4) The reduction of halides, which contain a triple bond or two double bonds.
- 5) The reaction between magnesium-organic compounds and halides, which contain a triple bond or two double bonds.

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SOV/74-27-2-2/5

Progress in Synthesis of Dienes With an Accumulated Double Bond (Allenenes)

Whilst in former times the splitting off of halide or hydrogen halide from halides of different structure were the most important methods for obtaining allenenes, recently the following new reactions have become important: The reduction of propargyl halides for obtaining alkyl allenenes; the arylation of propargyl halides with arylmagnesium bromides and the dehydration of arylated unsaturated alcohols for obtaining aryl allenenes. There are 123 references, 55 of which are Soviet.

Card 2/2

SOV/79-28-8-11/66

AUTHORS: Levina, R. Ya., Shabarov, Yu. S., Paukshas, V. K.

TITLE: Synthesis of the Hydrocarbons (Sintez uglevodorodov)
LXV. Di-Tert.-Alkylmethane From 2,4-Dimethylpentadiene-1,3
(LXV. Di-tret.-alkilmetany iz 2,4-dimetilpentadiyena-1,3)

ABSTRACT: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp.2049-2055(11)

ABSTRACT: In connection with a previous publication (Ref 1) the authors present the following results in this paper: a method of synthesizing two alkanes which have quaternaries separated by CH_2 groups has been worked out using 2,4-dimethylpentadiene-1,3 as the starting material. This is a difficult synthesis, and these two compounds were previously almost unknown. The method consists of 4 reactions: 1) preparation of a tertiary unsaturated allyl chloride by hydrochlorinating the 2,4-dimethylpentadiene-1,3; 2) the decomposition of this product with alkyl magnesium bromide to give alkenes with a quaternary carbon atom (45 - 65 % yield); 3) the hydrochlorination of this product; 4) reaction of the resulting tertiary chloride (maximum yield: 90 %) with alkyl magnesium bromide in the

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Synthesis of the Hydrocarbons.

SCV/79-29-8-11/66

LXV. Di-Tert.-Alkylmethane From 2,4-Dimethylpentadiene-1,3

presence of mercurious chloride. Di-tert.-alkylmethanes of symmetrical and unsymmetrical structure were synthesized, and some of these contained both quarternary and tertiary carbon atoms. The yield was 3 - 20 % calculated on the basis of the tertiary chloride, and 6 - 40 % calculated on the basis of the product of reaction 1). Descriptions are given for the first time of a few tertiary monochlorides which have a quarternary carbon in the chain. By hydrochlorinating the 2,4-dimethylpentadiene-1,3 a mono- and dihydrochloride were also prepared. There are 3 tables and 12 references, 10 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: July 1, 1957

Card 2/2

LEVINA, R.Ya.; KAYKARIS, P.A.; SIMOLIN, A.V.; TRESHCHOVA, Ye.O.

Synthesis of hydrocarbons. Part 66: C₁₁ - C₁₆ hydrocarbons with two adjacent quaternary carbon atoms. Zhur.ob.khim. 28 no.9:2309-2314 S '58. (MIRA 11:11)

1. Moskovskiy gosudarstvennyy universitet.
(Hydrocarbons)

AUTHORS: Levina, R. Ya., Kaykariu, P. A.,
Gombitskiy, P. A.

SOY/79-28-10-4/60

TITLE: Synthesis of Hydrocarbons (Sintez uglevodorodov) LXVII.
Hydrocarbons C_{12} , With One or Two Quaternary Carbon Atoms
(LXVII. Uglevodorody C_{12} s odnim i dvumya chetvertichnymi
atomami ugleroda)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10,
pp 2825 - 2828 (USSR)

ABSTRACT: In the paper under discussion, the primary hydrobromide
of isoprene (I) is applied to the synthesis of
ethylene- and paraffin hydrocarbons of the compositions
 $C_{12}H_{24}$ and $C_{12}H_{26}$. In the reaction of the hydrobromide
of isoprene with 2-magnesiumchloro-2-methylhexane, an
alkene with a quaternary carbon atom, 2,5,5-trimethyl-
nonane-2 (III), was obtained. Its hydration yielded
2,5,5-trimethylnonane (IV). From the reaction of the iso-
prene hydrobromide with 3-magnesiumchloro-2,2,3-tri-
methylbutane, an ethyl hydrocarbon $C_{12}H_{24}$ (V) with two

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Synthesis of Hydrocarbons. LXVII. Hydrocarbons C_{12} ,
With One or Two Quaternary Carbon Atoms

SOV/79-28-10-4/60

adjacent quaternary carbon atoms was obtained. Its hydration furnished the compound (VI). Isomeric alkenes and alkanes of this kind had so far remained unknown. The yields of the two isomeric alkenes (III and V) amounted to 8 and 7% only, a fact which can be explained by side processes (Ref 3). The attempt to achieve the synthesis of the $C_{14}H_{28}$ hydrocarbons with three adjacent quaternary carbon atoms (VIII) was unavailing, as this branched structure involves difficulties of spatial arrangement. There are 11 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: August 19, 1957
Card 2/2

AUTHORS:

Levina, R. Ya., Kostin, V. N.

SOV/79-28-12-33/41

TITLE:

Reaction of Cyclopropane Hydrocarbons With Salts of Mercury Oxide (Vzaimodeystviye tsiklopropanovykh uglevodorodov s solyami okisi rtuti) VIII. Reaction of γ -Mercurized Alcohols With Zinc Dust (VIII. Reaktsiya γ -merkurirovannykh spirtov s tsinkovoy pyl'yu)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 28, Nr 12, pp 3307-3311 (USSR)

ABSTRACT:

The structure of the γ -mercurized alcohols (I) obtained by the authors by a synthesis earlier carried out by them, where the product was synthesized by the reaction of alkyl and aryl cyclopropanes with mercury salts dissolved in water (Refs 1-6), had to be proved by reduction (i.e. by means of substituting the HgX-group by hydrogen). The first reduction experiments were too complicated (Scheme 1). This time the authors attempted to realize the symmetrization of the γ -mercurized alcohols (I) and the thermal decomposition of the products obtained in this symmetrization in one stage by heating the γ -mercurized alcohols with zinc dust. The previous symmetrization stage was thus avoided to explain its

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Reaction of Cyclopropane Hydrocarbons With Salts
of Mercury Oxide. VIII. Reaction of γ -Mercurized
Alcohols With Zinc Dust

SOV/79-28-12-33/41

structure. Thus, the structural proof was made easier. A secondary alcohol and a ketone with the carbon skeleton of the organo-mercury compound used as initial product are formed from the γ -mercurized alcohols containing a secondary alcohol group. The γ -mercurized alcohols with a tertiary alcohol group form tertiary alcohols with the carbon skeleton of mercurized alcohol, whereas the formation of the ketones is connected with a cleavage of the C-C bond. On heating the β -mercurized alcohol obtained from triptene by the action of mercury acetate a separation of the mercury salt and the formation of the initial ethylene hydrocarbon, triptene, took place. The reaction of the thermal decomposition in the presence of zinc dust was also attempted with β -oxy-2,3-dimethyl-butyl mercury acetate (III). From this γ -mercurized tertiary alcohol the dimethyl isopropyl carbinol, acetone and propylene were obtained (Scheme 4). There are 14 references, 10 of which are Soviet.

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Reaction of Cyclopropane Hydrocarbons With Salts
of Mercury Oxide. VIII. Reaction of γ -Mercurized
Alcohols With Zinc Dust

SOV/79-28-12-33/41

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 12, 1957

Card 5/3

AUTHORS: Levina, R. Ya. Skvarchenko, V. R., Chervoneva, L. A., Fedorchuk, L. V., Vasil'yeva, T. T. 20-118-5-25/59

TITLE: The Synthesis of Aromatic Hydrocarbons
(Sintez aromaticheskikh uglevodorodov)
A New Method of Synthesizing Hydrocarbons of the Fluorene
Series (Novyy metod sinteza uglevodorodov ryada fluorena)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 5, pp. 938-941
(USSR)

ABSTRACT: The effect of phosphorous pentoxide on tetrahydrophtalic anhydrides leads to the formation of aromatic hydrocarbons with elimination of CO and H₂O as was proved by some of the authors (references 1-6). In the present paper the influence of phosphorous pentoxide on phenyltetrahydrophtalic aldehyde (I) (an addition of phenyl-butadiene with maleic anhydride) was investigated. In this case the reaction lead to the formation of fluorene (with a 21% yield) instead of diphenyl as might have been expected. It seems that the reaction passes through intermediate stages of an intramolecular acylation of the benzene nucleus. This leads to the formation

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The Synthesis of Aromatic Hydrocarbons.

20-118-5-25/59

A New Method of Synthesizing Hydrocarbons of the Fluorene Series

of tetrahydrofluorenone-carboxylic acid (II) which is further decarboxylated to tetrahydrofluorenone (III). Under the influence of phosphorous pentoxide this is changed into fluorene. The authors simplified this reaction by starting from phenyltetrahydrobenzoic acid (an addition of divinyl with cinnamic acid (V). When it was warmed up with phosphorous pentoxide fluorene was formed with a 63% yield. From the addition of cinnamic acid with isoprene and 2,3-dimethylbutadiene 3-methylfluorene (50% yield) and 2,3-dimethylfluorene (53% yield) were produced. The production of just 3-methylfluorene (melting point $87,5^{\circ} - 88^{\circ}\text{C}$) and not of 2-methylfluorene (melting point 104°C) which is isomeric to it, from the addition of isoprene with cinnamic acid confirms the structure of this addition as 4-methyl-2-phenyl-1,2,3,6-tetrahydrobenzoic acid. From the addition of cinnamic acid with dicyclohexenyl (VIII) and dicyclopentenyl (IX), 1,2,3,4-dicyclohexane-fluorene (X) with a 83,5% yield and 1,2,3,4-dicyclopentane-fluorene (XI) with a 73% yield could be produced. Thus the reaction of the 2-aryl-1,3,6-tetrabenzoic acids (addition of diene-hydrocarbons with cinnamic acid) with phosphorous pentoxide can be recommended as a new

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SOV/20-121-2-30/53

AUTHORS: ~~Lavina, R. Ya.~~, Shabarov, Yu. S., Kuz'min, M. G., Vasil'yev,
N. I., Treshchova, Ye. G.

TITLE: A New Method of the Production of Cyclobutane Hydrocarbons
(Novyy metod sinteza tsiklobutanovykh uglevodorodov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 2, pp. 303 -
306 (USSR)

ABSTRACT: Shortly the authors wrote about the possibility of a synthesis
as mentioned in the title by means of the decomposition of
tetra-hydro-pyridazine (Ref 1). In the present paper they
investigate this reaction by means of some examples. The last
mentioned initial substances are 6-membered analogs of
pyrazolines. In the case of their heating in the presence of
caustic potash and platinum they decompose under the separation
of nitrogen and a formation of cyclobutane hydrocarbons. It
showed that the biradicals III forming as intermediates not
only do not cyclize but even cleave under the formation of
ethylene hydrocarbons. The quantitative ratio between the
aryl-cyclobutane formed and the corresponding styrene can be

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A New Method of the Production of Cyclobutane Hydrocarbons

classified according to the ratio between the quantity of nitrogen and that of ethylene separated in the decomposition of the initial monoaryl-tetra-hydro-pyridazine (IIa in IIb). Thus the authors were the first to succeed in extending the range of application of the classical Kishner reaction which hitherto has been regarded only of use in the synthesis of cyclopropane hydrocarbons. This way the authors synthesized the hitherto not described p-tolyl cyclobutane and 1,2-diphenyl cyclobutane. In an earlier paper (Ref 3) the authors proved that in phenyl cyclopropane there exists a conjugation between the benzene nucleus and the 3-membered cycle. The comparison of the intensities of some of the most intensive frequencies (characteristic of the benzene ring) in the spectra of the combination dispersion of phenyl cyclobutane with the intensities of corresponding frequencies in the spectra of the propenyl benzene, phenyl cyclopropane on the one hand and alkyl benzenes on the other hand proved that the monosubstituted aromatic hydrocarbons are arranged in a series as follows: propenyl benzene > phenyl cyclopropane > phenyl cyclobutane > isopropyl benzene (Table 1). The same frequencies in the spectrum of p-tolyl cyclobutane

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SOV/20-121-2-30/53

A New Method of the Production of Cyclobutane Hydrocarbons

have far higher intensities than in the spectrum of p-methyl-ethyl benzene. This fact proves the existing conjugation between the benzene ring and the 4-membered nucleus. There are 1 table and 12 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 27, 1958, by A. N. Nesmeyanov, Member, Academy of Sciences, USSR

SUBMITTED: February 26, 1958

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5.3400

68052

SOV/55-59-3-21/32

~~5-37~~

AUTHORS:

Levina, N. Yu., Godovikova, T. I., Vinogradova, V. N.

TITLE:

On the Synthesis of Ethers and Esters of Cyclopentene-1-ol-3 and Its Homologs

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 3, pp 171 - 175 (USSR)

ABSTRACT:

The present paper is a continuation of the investigation of the use of mono- and dichlorocyclopentenes in organic synthesis. From 3-cyclopentene and potassium acetate the authors obtained the ester 3-acet-oxy-cyclopentene-1 with a 60% yield. As the production of 3-ethoxy-cyclopentene was not possible with sodium ethylate, the latter was caused to react with 1,2-dibromocyclopentane, and the hitherto not described 3-ethoxy-cyclopentene-1 was obtained with a 35% yield. For the purpose of obtaining homologs of this compound, 1-methyl- and 1-ethyl cyclopentene-2 were produced by the action of organomagnesium compounds upon 1-chlorocyclopentene-2, after which it was transformed into dibromide and caused to react with sodium ethylate. As a result of allyl regrouping, a

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SOV/55-59-3-21/32

On the Synthesis of Ethers and Esters of Cyclopentene-1-ol-3 and Its Homologs

mixture of alkoxy-alkyl cyclopentenes was obtained, the composition of which could be explained by means of the Raman spectra recorded by Ye. G. Treshchova: In the reaction of the ethyl derivative 43% of 3-ethoxy-1-ethylcyclopentene-1 and 57% of 1-ethoxy-1-ethyl cyclopentene-2 had been formed. There are 5 references, 4 of which are Soviet. 4

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: January 2, 1959

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5.3300

68054
SOV/55-59-3-25/325(3)
AUTHOR:Levina, R. Ya., Shabarov, Yu. S.

TITLE:

Cyclopropanes and Cyclobutanes

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 3, pp 201 - 202 (USSR)

ABSTRACT:

The authors report that they recently synthesized several acryl cyclopropanes (together with V. K. Potapov) and acryl cyclobutanes (together with M. G. Kuz'min, N. I. Vasil'yev, and S. I. Pokraka) which had not yet been described in publications, and (together with Ye. G. Treshchova) determined their Raman spectra as well as their ultraviolet absorption spectra (Table). In an earlier paper, in collaboration with B. A. Kazanskiy et al., they proved the connection of the three-membered ring with the aromatic ring on phenylcyclopropane, tolylcyclopropane, p-anisylcyclopropane, 1,1-diphenylcyclopropane, and 1,2-diphenylcyclopropane. In continuation of this work, also a connection of the four-membered ring with the benzene ring was found together with

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Cyclopropanes and Cyclobutanes

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SOV/55-59-3-25/32

M. G. Kuz'min, N. I. Vasil'yev and Ye. G. Treshchova on phenylcyclobutane and p-tolylcyclobutane on the basis of the higher intensities of the characteristic frequencies in the Raman spectrum, which, however, is not so strong as in the case of acrylcyclopropanes. There are 1 table and 4 Soviet references. ✓

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: December 24, 1958

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5.3300

69007

AUTHORS:

Levina, R.Ya., Daukshas, V.K.

8/055/59/000/04/023/026
B004/B007

TITLE:

The Synthesis of Hydrocarbons 73. The Viscous Properties and the Solidification Point of Di-tertiary Alkyl-methanes

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 4, pp 221-224 (USSR)

ABSTRACT:

In references 1-5 the authors gave a report on the synthesis of paraffin hydrocarbons having two or three tetrasubstituted carbon atoms separated by a methylene group, and mentioned several physical constants (boiling point, n_D^{20} , d_4^{20}). In this paper the data on the kinetic viscosity¹ (determined by means of an Ostwald capillary viscosimeter at 20°) as well as the solidification points are given. Table 1 gives these data for C_9H_{20} (2,2,4,4-tetramethyl pentane) to $C_{17}H_{36}$ (2,3,5,6,6-pentamethyl-3,5-diethyl-octane). Viscosity is considerably influenced by the structure. Ramified hydrocarbons have a higher degree of viscosity. Table 2 shows the temperature dependence of viscosity. With rising temperature, the differences in viscosity, which were observed at 20°, become less. Of the isomeric hydrocarbons $C_{15}H_{32}$, the highest specific gravity is found with those hydrocarbons which contain two neighboring tetra-substituted carbon atoms or neighboring tetra- and trisubstituted

Card 1/2

AUTHORS:

Levina, R. Ya., Kostin, V. N.,
Shanazarov, K. S.

SOV/79-29-1-9/74

TITLE:

Reaction of Cyclopropane Hydrocarbons With Salts of Mercury
Oxide (Vzaimodeystviye tsiklopropanovykh uglevodorodov s
solyami okisi rtuti) IX. γ -Mercurized Alcohols and Their
Ethers From Aryl Cyclopropanes (IX. γ -Merkurirovannyye spirty
i ikh efiry iz ariltsiklopropanov)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 40-44 (USSR)

ABSTRACT:

In an earlier paper the authors described (Ref 1) the decomposition of the three-membered cycle in phenyl cyclopropane under the action of mercury acetate. The present paper deals with the reaction of this acetate in an aqueous and methanol solution with aryl cyclopropanes which in the benzene ring contain a methyl- and methoxy group in para-position. It was found that the reaction takes place under the same conditions as in the case of phenyl cyclopropane, i.e. when the reaction mass is shaken for hours at low temperature. The addition of mercury acetate to the two aryl cyclopropanes (p-anisyl- and p-tolyl cyclopropane) leads to the formation of β -oxy- β -aryl propyl mercury acetates and

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Reaction of Cyclopropane Hydrocarbons With Salts of
Mercury Oxide. IX. γ -Mercurized Alcohols and Their
Ethers From Aryl Cyclopropanes

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β -methoxy- β -aryl propyl mercury acetates respectively. Under the action of potassium salts upon them the corresponding crystalline salts of γ -mercurized secondary alcohols and their methyl ethers (Scheme 1) are formed. The structure of the γ -mercurized secondary alcohols was determined according to the method which had already been previously worked out by the authors (Ref 2). The synthesis of the crystalline organo-mercury compounds can serve for the identification of p-anisyl cyclo- and p-tolyl cyclopropane. A new description was given of the following compounds: β -oxy- β -p-anisyl propyl mercury acetate and its chloride, bromide, iodide, cyanide and thiocyanate; β -oxy- β -p-tolyl propyl mercury acetate; β -methoxy- β -p-tolyl propyl mercury chloride and its bromide. There are 2 tables and 6 references, 3 of which are Soviet.

ASSOCIATION:

Moskovskiy gosudarstvennyy universitet (Moscow State University)

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Reaction of Cyclopropane Hydrocarbons With Salts of
Mercury Oxide. IX. γ -Mercurized Alcohols and Their
Ethers From Aryl Cyclopropanes

SOV/79-29-1-9/74

SUBMITTED: November 18, 1957

Card 3/3

AUTHORS:

Levina, R. Ya., Shabarov, Yu. S.,
Shanazarova, I. M.

SOV/79-29-1-10/74

TITLE:

Cyclopropanes and Cyclobutanes (Tsiklopropany i tsiklobutany)
V. Aryl Cyclopropane in the Alkylation Reaction (V.
Ariiltsiklopropany v reaktsii alkilirovaniya)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 44-48 (USSR)

ABSTRACT:

In the present paper the behavior of phenyl cyclopropane was investigated in the alkylation reaction of benzene, toluene and anisole as well as that of p-tolyl- and p-anisyl cyclopropanes in the alkylation reaction of benzene. From the publication data on the alkylation of the aromatic hydrocarbons with alkyl cyclopropanes (Refs 7-12) it follows that $AlCl_3$ does not cause a preliminary isomerization of cyclopropanes into alkenes (Refs 8,12). The same catalyst was also applied to this case. In the case of alkylation of benzene with phenyl cyclopropane 1,1-diphenyl propane (yield 52%) was obtained, (Scheme 1) the structure of which was confirmed by the reduction of 1,1-diphenyl propene-1 with sodium in butyl alcohol (Schemes 2 and 3). Thus the alkyla-

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Cyclopropanes and Cyclobutanes. V. Aryl
Cyclopropane in the Alkylation Reaction

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tion of benzene with phenyl cyclopropane in the presence of $AlCl_3$ leads to 1,1-diphenyl propane in the same way as it is the case in the reaction of benzene with styrene which leads to 1,1-diphenyl ethene (Refs 13,14). In the case of the above-mentioned alkylation reaction of benzene, toluene, and anisole an opening of the three-membered ring takes place under the formation of 1-phenyl- 1-aryl propanes (with a yield of 52;61.5;72.5%). It was found that toluene and anisole are alkylated with phenyl cyclopropane in para-position. The alkylation of benzene with p-tolyl- and p-anisyl cyclopropanes proceeds less smoothly than in the case of phenyl cyclopropane as the former polymerize considerably in the presence of $AlCl_3$. There are 16 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 2, 1957

Card 2/2

SOV/79-29-2-9/71

AUTHORS:

Shusherina, N. P., Levina, R. Ya., Sidenko, Z. S.

TITLE:

δ -Lactones (δ -Laktony). XIII. Synthesis of 6-Methyl-5-alkyl-3,4-dihydro- α -pyrones (XIII. Sintez 6-metil-5-alkil-3,4-digidro- α -pironov)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 398-402 (USSR)

ABSTRACT:

In their previous reports the authors had described a new synthesis of unsaturated δ -lactones (δ -enollactones), being brought about by the monocyanoethylation of the ketones, by hydrolysis of the forming nitriles in the δ -keto acids, and by the lactonization of the latter. δ -enallactones of different structure were obtained in this way: 5,6-cycloalkano-3,4-dihydro- α -pyrone (Refs 1-3), 5-alkyl-6-alkylidenetetrahydro- α -pyrone (Ref 4) and low 6-methyl and 5,6-dimethyl-3,4-dihydro- α -pyrone (Refs 2,5). In the work under review, the following hitherto unknown 6-methyl-5-alkyl-3,4-dihydro- α -pyrones were synthesized correspondingly: 6-methyl-5-ethyl-(VII), 6-methyl-5-propyl-(VIII) and 6-methyl-5-butyl-3,4-dihydro- α -pyrone (IX) (Scheme 1). The initial ketones (methylpropyl, methylbutyl and methylamyl ketone) were cyanoethylated according to reference 5 γ -acetyl capro-

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SOV/79-29-2-9/71

 δ -Lactones. XIII. Synthesis of 6-Methyl-5-alkyl-3,4-dihydro- α -pyrones

nitrile (I) and γ -acetyl caprylonitrile (III) (monocyanacetylated methylpropyl and methylamyl ketones) were obtained in 41% and 50% yield, as compared to 14 and 18% from publications. Their hydrolysis with diluted hydrochloric acid led to γ -acetylcaprone, " γ -acetyleneanto" and γ -acetyl caprylic acid (96, 93 and 91% yield). By heating the synthesized δ -keto acids with acetyl chloride or acetic acid anhydride, unsaturated δ -lactones were obtained: pyrones (VII), (VIII), (IX) (60%, 92% and 82%). By the action of alcohol (in the presence of HCl) and aqueous ammonia the lactone cycle of dialkyldihydro- α -pyrones was easily opened, under formation of esters (X, XI and XII) and, correspondingly, of amides (XIII, XIV, XV) of δ -keto acids (Scheme 2). On standing, amides separate one molecule of water and are transformed into the unsaturated lactams (XVI, XVII and XVIII) (Scheme 3). The facility by which these amides dehydrate presupposes a ring-chain tautomerism in them, in which they can react as in the amide and also in the oxylactam form (Refs 6,7) (Scheme 4) (Refs 6,7). Constants, yields and analyses of the compounds synthesized are given in the table. There are 3 tables and 11 references, 7 of which are Soviet.

Card 2/3

SOV/79-29-2-9/71

δ -Lactones. XIII. Synthesis of 6-Methyl-5-alkyl-3,4-dihydro- α -pyrones

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 24, 1957

Card 3/3

30V/79-29-2-10/71

AUTHORS: Shusherina, N. P., Levina, R. Ya, Sidenko, Z. S., Lur'ye, M. Yu.

TITLE: δ -Lactones (δ -Laktony). XIV. Synthesis of 6-Methyl-5-alkyl- α -pyrones (Sintez 6-metil-5-alkil- α -pironov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2. pp 403-407 (USSR)

ABSTRACT: The authors found earlier that on distilling 5,6-dibromosubstituted bi and tricyclic δ -lactones, the corresponding α -pyrones are formed (Scheme 1). δ -lactones are obtained by the bromination of δ -enollactones, which in their turn are formed by condensation from polymethylene cycles in the position 5,6. In the work under review this method was used for the synthesis of 5,6-dialkyl- α -pyrones. It is shown that on distilling 5,6-dibromo-6-methyl-5-alkyl-tetrahydro- α -pyrones (V-VIII), formed in connection with the bromination of 6-methyl-5-alkyl-3,4-dihydro- α -pyrones (I-IV) (Ref 3), the corresponding α -pyrones are obtained in yields of 10-17%. The low yield is explained by the circumstance that besides the dehydrobromination of dibromides (V-VIII) they also undergo debromination which fact leads to the formation of the unsaturated initial δ -lactones (I-IV) (in yields of 50-60%) (Scheme 2). The yield in α -pyrones can be increased to

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SOV/79-29-2-10/71

 δ -Lactones. XIV. Synthesis of 6-Methyl-5-alkyl- α -pyrones

25-46% by an appropriate pre-heating of the dibromo-lactones at 130-140° in vacuum and by a further fractionated distillation of the δ -lactones forming therefrom (excepting the compound (IX) which is separated from lactone (I) by freezing). The following difficultly accessible and hitherto unknown 5,6-dialkyl-substituted α -pyrones were obtained in this way: 5,6-dimethyl, 6-methyl-5-ethyl, 6-methyl-5-propyl and 6-methyl-5-butyl- α -pyrone (IX, X, XI, XII) in yields of 27, 25, 38 and 46%, correspondingly. There are 1 table and 7 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 24, 1957

Card 2/2

5(3)

AUTHORS:

Levina, R. Ya., Daukshas, V. K., Kaykalis, P. A.

SOV/79-29-4-3/77

TITLE:

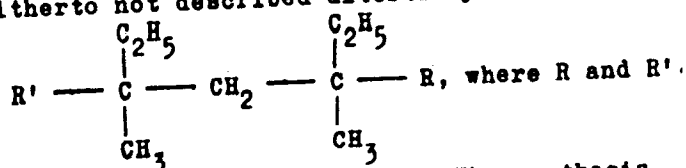
Synthesis of Hydrocarbons (Sintez uglevodorodov). 68. Ditertiary Alkyl Methanes $C_{13} - C_{15}$ From 3,5-Dimethyl Heptadiene-2,4 (68. Ditretichnoalkilmetany $C_{13} - C_{15}$ iz 3,5-dimetilgeptadiyena-2,4)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1056-1061 (USSR)

ABSTRACT:

In previous papers (Refs 1,2) the authors described a new synthesis of ditertiary alkyl methanes $R'(CH_3)_2C-CH_2-C(CH_3)_2R$ and used as initial product a tertiary chloride of the allyl type. In the present paper a new general synthesis of the difficultly accessible and hitherto not described ditertiary alkyl methanes of the structure



are equal or different radicals, was devised. The synthesis consists of the following steps: a) Condensation of the methyl-

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SOV/79-29-4-3/77

Synthesis of Hydrocarbons. 68. Ditertiary Alkyl Methanes C_{13} - C_{15} From
3,5-Dimethyl Heptadiene-2,4

ethyl ketone into the 3-methyl hepten-3-one-5; b) synthesis of the 3,5-dimethyl heptadiene-2,4 (IIa) (with a possible impurity of the isomeric diene of the same carbon skeleton). (IIb) by reaction of methyl heptenone with methyl magnesium bromide; c) hydrochlorination of dimethyl heptadiene; d) reaction of the resulting 3-chloro-3,5-dimethyl heptene-4 (III) with alkyl magnesium bromides; e) hydrochlorination of the alkenes (reaction products), i.e. the synthesis of tertiary saturated chlorides [(3-chloro-3,5-dimethyl-5-ethyl alkanes (V)] with a quaternary carbon, and f) reaction of these chlorides with organo-magnesium compounds in the presence of $HgCl_2$ (VI) (see the two reaction schemes). The following compounds were thus newly synthesized: 3,5-dimethyl-3,5-diethyl heptane; 4,6-dimethyl-4,6-diethyl nonane; 2,3,5-trimethyl-3,5-diethyl octane and 2,3,5,6-tetramethyl-3,5-diethyl heptane. There are 3 tables and 14 references, 9 of which are Soviet.

Card 2/3

Synthesis of Hydrocarbons. 68. Ditertiary Alkyl Methanes $C_{13} - C_{15}$ From
3,5-Dimethyl Heptadiene-2,4

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: February 19, 1958

Card 3/3

5(3)
AUTHORS:

SOV/79-29-4-4/77
Shusherina, N. P., Trubnikov, I. S., Levina, R. Ya.

TITLE:

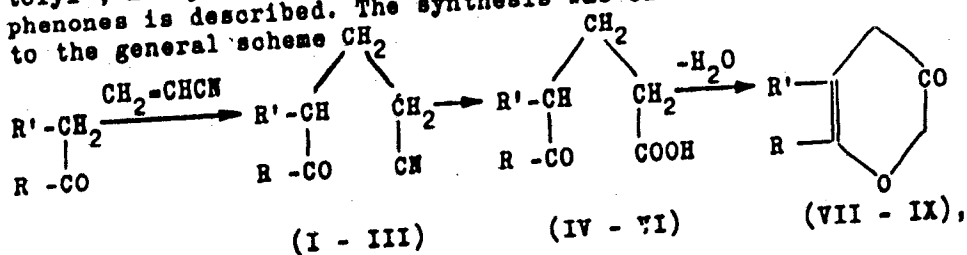
δ -Lactones (δ -Laktony). XVI. Synthesis of Aryl-substituted
 δ -Enol Lactones (XVI. Sintez arilzameshchennykh δ -enollaktonov)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1062-1064 (USSR)

ABSTRACT:

The authors previously described the synthesis of the 6-phenyl-3,4-dihydro- α -pyrone from monocynoethylated acetophenone (Ref 1). In the present paper the synthesis of some other aryl-substituted δ -enol lactones from monocynoethylated methyl-n-tolyl-, methyl-benzyl ketones and monocynoethylated propiophenones is described. The synthesis was carried out according to the general scheme



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SOV/79-29-4-4/77

δ -Lactones. XVI. Synthesis of Aryl-substituted δ -Enol Lactones

where in (I, IV, VII): $R = n\text{-CH}_2\text{C}_6\text{H}_4$, $R' = \text{H}$;
 in (II, V, VIII): $R = \text{CH}_3$, $R' = \text{C}_6\text{H}_5$;
 in (III, VI, IX): $R = \text{C}_6\text{H}_5$, $R' = \text{CH}_3$.

The monocyanoethylation of the methyl-n-tolyl ketone was performed according to a method devised previously by the authors for the cyanoethylation of acetophenone (Ref 1). Methyl-benzyl ketone and propiophenone were caused to react with acryl nitrile under conditions used in the monocyanoethylation of ketones (Refs 2,3). The hydrolysis of the δ -ketonitriles (I-III) obtained and the lactonization of the δ -keto acids (IV-VI) obtained gave three isomeric aryl-substituted δ -enol lactones, namely: 6-(n-tolyl)-3,4-dihydro- α -pyrone (VII); 6-methyl-5-phenyl-3,4-dihydro- α -pyrone (VIII), and 5-methyl-6-phenyl-3,4-dihydro- α -pyrone (IX). There are 6 references, 2 of which are Soviet.

ASSOCIATION:

Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED:
Card 2/2

March 4, 1958

5(3)

AUTHORS:

Levina, R. Ya., Kostin, V. N., Kim Dyay Gir, Ustynyuk, T. K.

SOV/79-29-6-41/72

TITLE:

Reaction of Cyclopropane Hydrocarbons With Mercuric Salts
(Vzaimodeystviye tsiklopropanovykh uglevodorodov s solyami
okisi rtuti). X. Action of Mercury Acetate on (0,1,3)-Bicyclo-
hexanes (X. Deystviye atsetata rtuti na (0,1,3)-bitsiklogeksany)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 6,
pp 1956 - 1960 (USSR)

ABSTRACT:

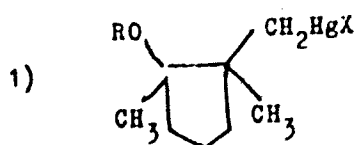
The products of the reactions described earlier (Refs 1-4) which are characteristic of the above hydrocarbons and which take place under the opening of the three-membered cycle i.e. the T- alcohols and their ethers were the products of the reaction with mercury acetate in aqueous and alcoholic solutions. Their investigation revealed the cleavage of the three-membered cycle between the hydrocarbon atoms which were the most strongly and the most weakly substituted (Scheme 1). The forming crystalline organomercury compounds may be successfully for the identification of the cyclopropane hydrocarbons. In the present paper it was found that the above reaction is also characteristic of the "bridge bicyclo hydrocarbons" in the system of which

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Reaction of Cyclopropane Hydrocarbons With Mercuric Salts. X. Action of Mercury Acetate on (0,1,3)-Bicyclohexanes

SOV/79-29-6-41/72

the three-membered cycle is integrated. It was shown (Scheme 2) that the opening of the three-membered cycle in the homologues of (0,1,3)-bicyclohexane in the action of mercury acetate on these homologues in aqueous or methanol solution does not take place at the bridge C-C-bond. The products of this reaction are cyclopentanoles γ -mercurized in the side chain or their methyl ethers. The synthesis of the crystalline γ -mercurized alcohols and their ethers may thus serve for the determination of 1,3-dimethyl-1,3,5-trimethyl and 1-methyl-3-ethyl-(0,1,3)-bicyclohexane. The structure of the γ -mercurized alcohols and their ethers is the following:

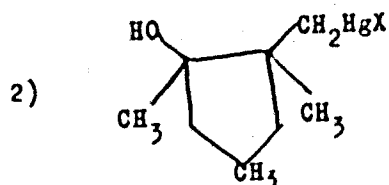


from 1,3-dimethyl-(0,1,3)-bicyclohexane

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Reaction of Cyclopropane Hydrocarbons With Mercuric Salts. X. Action of Mercury Acetate on (0,1,3)-Bicyclohexanes

SOV/79-29-6-41/72



from 1,3,5-trimethyl-(0,1,3)-bicyclohexane.

There are 3 tables and 7 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 25, 1958

Card 3/3

5(3)

AUTHORS:

SOV/79-29-7-17/83

Skvarchenko, V. R., Chervoneva, L. A., Pastukheva, I. S.,
Levina, R. Ya.

TITLE:

Aromatic Hydrocarbons (Aromaticheskiye uglevodorody).
IX. Synthesis of the Hydrocarbons of the Indan Series
(IX. Sintez uglevodorodov ryada indana)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2174-2178 (USSR)

ABSTRACT:

The aromatization reaction (Refs 1-5) worked out by the authors already earlier was used in the previous papers (Ref 6) for the synthesis of hydrocarbons of the tetralin series. The anhydride of Δ^1 -cyclohexene-1,2-dicarboxylic acid was used as dienophilic compound (Scheme 1). In order to obtain hydrocarbons of the indane series, the aromatization of the adducts of diene hydrocarbons was carried out with the anhydride of

Δ^1 -cyclopentene-1,2-dicarboxylic acid with the action of phosphorus pentoxide. This dienophilic compound was obtained according to scheme 2 from the ethyl ester of cyclopentanone-2-carboxylic acid (Ref 7). By causing the above anhydride to react with alkadienes, divinyl, isoprene, and 2,3-dimethylbutadiene-1,3 the hitherto unknown anhydrides (I), (II) and (III)

Card 1/2

Aromatic Hydrocarbons. IX. Synthesis of the
Hydrocarbons of the Indan Series

SOV/79-29-7-17/83

were synthesized in high yields (Scheme 3) after longer heating in the autoclave. By causing the anhydride (I) to react with phosphorus pentoxide indane (IV)(69%)(Scheme 4) resulted. From (II) 5-methyl indane (V)(61%)(Scheme 5) resulted by the same method. 5,6-Dimethyl indane (VI)(84%) was obtained by causing anhydride (III) to react with phosphorus pentoxide (Scheme 6). The hydrocarbons obtained were determined according to the constants and melting points of their sulphonamides. Also the compounds (VII) and (VIII) were obtained from the anhydride of

Δ^1 -cyclopentene-1,2-dicarboxylic acid. These adducts were transformed by phosphorus pentoxide into the polycyclic aromatic hydrocarbons (IX) and (X)(Scheme 7). There are 17 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 4, 1958

Card 2/2

5 (3)

AUTHORS:

Lavina, R. Ya., Kaykalis, P. A.
Baukh, I., Treshchova, Ye. G.

SOV/79-29-7-26/83

TITLE:

Synthesis of Hydrocarbons (Sintez uglevodorodov). LXIX. A New General Method of the Synthesis of Dineoalkyls ($C_{10}H_{22}$ - $C_{12}H_{26}$), Dineopentyl and Its Homologs (LXIX. Novyy obshchiy put' sinteza dineoalkilov ($C_{10}H_{22}$ - $C_{12}H_{26}$)-dineopentila i yego homologov)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2236 - 2240 (USSR)

ABSTRACT:

One of the ethylene hydrocarbons with a quaternary carbon (Refs 1,2), 2,2,5-trimethyl hexene-4 (II) synthesized by the authors already earlier, was obtained by the reaction of primary isoprene hydrobromide with tertiary butyl magnesium chloride (according to Grignard-Wuertz). This compound (II) was used for the synthesis of the difficultly accessible paraffins which have two quaternary carbons separated by two CH_2 groups, i.e. of dineopentyl and its homologs (of the dineoalkyls). Compound (II) was transformed by hydrogen chloride into the saturated tertiary chloride (III), which was caused

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Synthesis of Hydrocarbons. LXIX. A New General Method of the Synthesis of Dineoalkyls ($C_{10}H_{22}$ - $C_{12}H_{26}$). SOV/79-29-7-28/83

Dineopentyl and Its Homologs

to react with alkyl magnesium bromides in the presence of $HgCl_2$ (Grignard-Wuert reaction) and led to compound (IV) (Scheme 1). In the reaction of tertiary chloride (III) with alkyl magnesium bromides also side-reactions took place: the separation of HCl from the tertiary chloride (re-formation of the initial-2,2,5-trimethyl hexene-4(50%)), which was then reduced into the 2,2,5-trimethyl hexane (Scheme 2). This mixture of dineoalkyl and the lower boiling trimethyl hexene and trimethyl hexane which is obtained in any case was separated by fractional distillation. The dineoalkyls purified by a further distillation and by methods of chromatography on silica gel resulted in yields of 10-16%, computed for the tertiary chloride (III) used for the reaction. The Raman spectra confirm the presence of quaternary carbon atoms in them. By the method of the "Grignard-Wuert reaction carried out two times" the authors synthesized the difficultly accessible dineopentyl (2,2,5,5-tetramethyl hexane) and its homologs

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Synthesis of Hydrocarbons. LXIX. A New General Method SOV/79-29-7-28/83
of the Synthesis of Dineoalkyls ($C_{10}H_{22}$ - $C_{12}H_{26}$),
Dineopentyl and Its Homologs

$C_{11}H_{24}$ and $C_{12}H_{26}$, 2,2,5,5-tetramethyl heptane, 2,2,5,5-tetramethyl octane, and 2,2,5,5,6-pentamethyl heptane which have hitherto not been described. There are 1 table and 12 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 27, 1958

Card 3/3

5 (3)

AUTHORS:

Levina, R. Ya., Kostin, V. N.,
Gembitskiy, P. A.

SOV/79-29-7-80/83

TITLE:

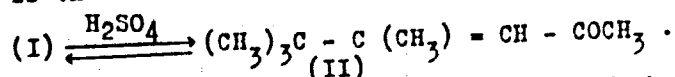
Letter to the Editor (Pis'mo v redaktsiyu). On the Photochemical Isomerization of Vinyl Ketones Into Allyl Ketones (O foto-khimicheskoy izomerizatsii vinilketonov v allilketony)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2456-2458 (USSR)

ABSTRACT:

The acylation of triptene (2,2,3-trimethyl butene-3) with acetic anhydride in the presence of phosphoric acid yielded the unsaturated ketone, with a β, γ -position of the double bond with respect to the carbonyl group, the 2,2-dimethyl-3-methylene hexanone-5 (I) (Scheme 1). On standing for some months the ketone (I) isomerized to form the 2,2,3-trimethyl-hexen-3-one-5 (II), under rearrangement of the double bond. An equilibrated mixture of the ketone (I) and its isomerization product (II) is there formed



If this resulting equilibrated mixture of the isomeric unsaturated ketones is irradiated with ultraviolet light in

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Letter to the Editor. On the Photochemical Isomerization SOV/79-29-7-80/83
of Vinyl Ketones Into Allyl Ketones

quartz, its α,β -form, the vinyl ketone (II), isomerizes completely to produce the initial β,γ -form, the allyl ketone (I): $[(II) \longrightarrow (I)]$. In this way a pure β,γ -unsaturated ketone, the 2,2-dimethyl-3-methylone hexanone-5 is formed from the mixture of the α,β - and β,γ -unsaturated ketones. In order to clarify whether this photochemical isomerization of the vinyl into the allyl ketones is of general nature, 1-acetyl cyclohexene-1 was likewise irradiated; about the half of this compound was found to be isomerized into the 1-acetyl-cyclohexene-2 (Scheme 3). Thus the vinyl ketones isomerize by a photochemical process completely or partially to give the allyl ketones. There are 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: March 24, 1958

Card 2/2

5(3)

SOV/79-29-8-32/81

AUTHORS:

Levina, R. Ya., Daukshas, V. K., Kostrov, V. A.

TITLE:

Synthesis of Hydrocarbons. LXX. Synthesis of Ditertiary Alkyl Methanes ($C_{14}-C_{17}$) With Three Quaternary Carbon Atoms

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2601 - 2604 (USSR)

ABSTRACT:

The authors recently described (Refs 1-3) the general method of synthesizing the paraffin hydrocarbons with two quaternary carbon atoms which are separated by a methylene group (of the ditertiary alkyl methanes); the tertiary allyl chlorides (I), the monohydrochlorides of 2,4-dimethyl pentadiene-1,3, ($R=CH_3$) or of 3,5-dimethyl heptadiene-2,4 ($R=C_2H_5$) were introduced into the reaction, i.e. into the first reaction of Grignard-Wuertz, with alkyl magnesium; the resultant alkenes were hydrochlorinated, and the tertiary saturated chlorides synthesized in this connection were converted with alkyl magnesium bromides in the presence of mercuric chloride (in the second Grignard-Wuertz reaction) into the ditertiary alkyl methanes. In the present paper the tertiary alkyl-magnesium chlorides were used (instead of the

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Synthesis of Hydrocarbons. LXX. Synthesis of Ditertiary SOV/79-29-8-32/81
Alkyl Methanes ($C_{14}-C_{17}$) With Three Quaternary Carbon Atoms

previously employed primary or secondary alkyl-magnesium bromides) in the first part of the Grignard-Wuert reaction. The alkenes (II) with two adjacent quaternary carbon atoms were formed; by hydrochlorination of these alkenes, the corresponding saturated tertiary chlorides (III) were obtained, from which the ditertiary alkyl methanes (IV) with considerably branched structure and with three quaternary carbon atoms were synthesized with isopropylmagnesium bromide, in the presence of $HgCl_2$, according to Grignard-Wuert (Reaction Scheme). In this way, the former universal method of synthesizing the ditertiary alkyl-methanes with two quaternary carbon atoms was extended to the ditertiary alkyl methanes with three quaternary carbon atoms. In both tables, the constants of the resultant alkenes and alkanes with the corresponding general structure formulas are given. The authors expressed their gratitude to Ye. G. Treshchova for the optical investigations which were carried out in order to characterize the compounds synthesized. There are 2 tables and 8 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)
SUBMITTED: July 4, 1958
Card 2/2

SOV/79-29-8-33/81

5(3)

AUTHORS:

Skvarchenko, V. R., Levina, R. Ya., Karpenko, N. F.

TITLE:

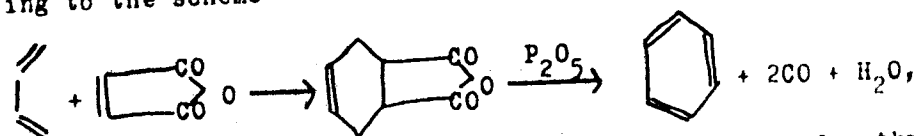
Aromatic Hydrocarbons. X. Synthesis of Polymethyl-diethyl Benzenes From Adducts of 3,4-Diethyl-hexadiene-2,4 With Maleic and Alkyl-maleic Anhydrides

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2605 - 2609 (USSR)

ABSTRACT:

The aromatization of the tetrahydrophthalic anhydrides under the action of phosphorus pentoxide carried out previously according to the scheme



was used in the present paper for the synthesis of polymethyl-diethyl benzenes hitherto unknown (dimethyl-, trimethyl-, and tetramethyl-diethyl benzenes). The transformation of the adducts of tetraalkyl-butadiene (of 3,4-diethyl-hexadiene-2,4) with maleic, methyl- and dimethyl-maleic anhydride under the action

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Aromatic Hydrocarbons. X. Synthesis of Polymethyl-diethyl SOV/79-29-8-33/81
Benzenes From Adducts of 3,4-Diethyl-hexadiene-2,4 With Maleic and Alkyl-maleic
Anhydrides

of P_2O_5 was investigated. The behavior of 3,4-diethyl-hexadiene-2,4 in the "diene synthesis" has so far not been investigated. It was carried out on heating in the autoclave at 120, 130, and 190°, respectively, within 10, 20, and 30 hours (yields 72.41 and 67%) (Scheme 2). From compound (I) compound (IV) was obtained by heating with P_2O_5 in a 71% yield (Scheme 3). By reaction of P_2O_5 with (II), (V) was formed (89%) (Scheme 4). The adduct of 3,4-diethyl-hexadiene-2,4 with dimethyl-maleic anhydride, compound (III), was more resistant to P_2O_5 . Compound (VI) could only be obtained by heating the reaction mass for 10 hours (Scheme 5) (77%). The synthesized hydrocarbons not yet described were closely characterized. The initial diene, the 3,4-diethyl-hexadiene-2,4, was obtained by dehydration of 3,4-dimethyl-hexanediol-3,4 with acetic anhydride in the presence of orthophosphoric acid (50-54%). There are 11 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)
SUBMITTED: July 4, 1958
Card 2/2

5(3)

AUTHORS:

Shusherina, M. P., Levina, R. Ya.,
Trubnikov, I. S.

SOV/79-29-9-28/76

TITLE:

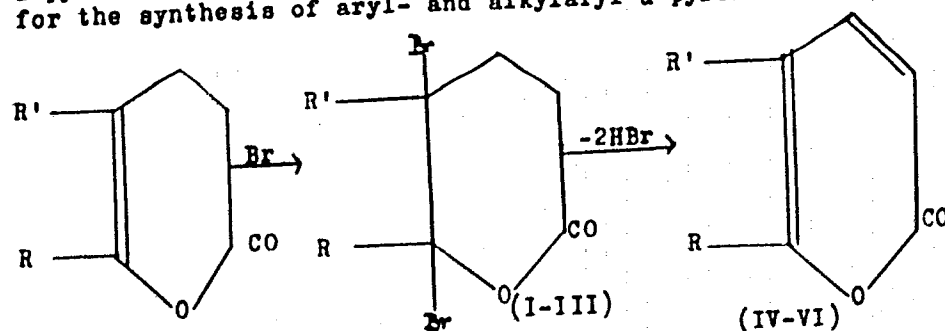
δ -Lactones.
XVII. Synthesis of the Aryl- and Alkylaryl- α -pyrones

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2942-2945
(USSR)

ABSTRACT:

The present investigation employs the method of synthesizing α -pyrones previously developed and described (Refs 1-4) also for the synthesis of aryl- and alkylaryl- α -pyrones:



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δ -Lactones.

XVII. Synthesis of the Aryl- and Alkylaryl- α -pyrones

where (I and IV) $R = p\text{-CH}_3\text{C}_6\text{H}_4$, $R' = \text{H}$;
 (II and V) $R = \text{C}_6\text{H}_5$, $R' = \text{CH}_3$;
 (III and VI) $R = \text{CH}_3$, $R' = \text{C}_6\text{H}_5$.

(Abstracter's note:



is probably
 a misprint, compare
 also with structural
 formula, middle of
 p 2943)

This is the way of synthesizing
 hitherto not described isomeric
 α -pyrones which differ by the
 position of the methyl group: 6-p-tolyl- α -pyrone (IV),
 5-methyl-6-phenyl- α -pyrone (V), 6-methyl-5-phenyl- α -pyrone (VI).
 The structure of these α -pyrones was confirmed by the forma-
 tion of the double adducts (VII-IX) with maleic anhydride
 (Scheme 2). The yields of α -pyrones vary from 12 to 60%,
 according to the presence and the character of the substitutes
 in the 5- and 6-position, which corresponds fully to the
 transformation mechanism of the dibromides of the δ -enol
 lactones into the α -pyrones (Ref 5) as previously suggested
 by the authors; the subsequent separation of two molecules
 HBr from the dibromo lactones (in distillation) proceeds in
 such a way that the bromine atom of 5-position participates

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SOV/79-29-9-28/76

δ -Lactones.

XVII. Synthesis of the Aryl- and Alkylaryl- α -pyrones

in the formation of the first molecule HBr (Scheme 3) so that the mobility of this bromine atom in 5-position exerts a great influence upon the yields of α -pyrones. This is the reason for the difference between the yields of α -pyrone from dibromide (I) (12%) and the yield of α -pyrone from dibromide (II) (35%). A 60% α -pyrone (VI) yield results from the distillation of dibromide (III) where the C-Br -group is in 5-position. There are 7 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 14, 1958

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5(3)

SOV/79-29-9-29/76

AUTHORS:

Levina, R. Ya., Baukh, I.,
Kaykari, P. A., Treshchova, Ye. G.

TITLE:

Synthesis of Hydrocarbons.
LXXI. Synthesis of the Dineoalkyls $C_{12}H_{26}$ - $C_{14}H_{30}$

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2945-2950
(USSR)

ABSTRACT:

The present paper deals with the synthesis of the dineoalkyls C_{12} - C_{14} with a different position of the quaternary hydrocarbons in the chain, i.e. 3,3,6,6-tetramethyl alkanes and 4,4,7,7-tetramethyl decane (dineoheptyl) according to the method of synthesizing dineoalkyls recently developed by the authors (Ref 1) (by double Grignard-Wuert reaction). The compounds (II) (10% yield), i.e. 2,5,5-trimethyl heptene-2 and 2,5,5-trimethyl octene-2 (Scheme 2) were obtained by the reaction of the primary hydrobromide of isoprene (I) with tertiary amyl- and, accordingly, tertiary hexyl magnesium chloride. The Raman spectra of the synthesized alkenes were characteristic of trisubstituted ethylenes. The 2,2,5-trimethyl heptene-2 was also obtained by partial catalytic hydrogenation of 2,5,5-trimethyl heptadiene-2,6. This diene hydrocarbon

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SOV/79-29-9-29/76

Synthesis of Hydrocarbons.

LXXI. Synthesis of the Dineoalkyls $C_{12}H_{26}$ - $C_{14}H_{30}$

contains the groups of the monosubstituted ($-CH-CH_2$) and trisubstituted ($>C-CH-$) ethylene, which according to S. V. Lebedev (Ref 2) ought to be hydrogenated at a different rate. The hydrogenation of this heptadiene in fact occurs according to scheme 3 at constant rate until two hydrogen atoms are added per 1 mol diene. Constants and Raman spectra of the alkene obtained corresponded to the constants and the Raman spectra of 2,5,5-trimethyl heptene-2 which was synthesized according to Grignard-Wuertz. By HCl the 2,5,5-trimethyl alkenes-2 (II) were then transformed into the saturated chlorides (III) (93 and 75% yield), which in turn were transformed into dineoalkyls (IV) (Scheme 4) by reaction with organomagnesium compounds in the presence of $HgCl_2$. These dineoalkyls were separated from the initial alkenes (50-55%) by fractional distillation. The yields of dineoalkyl purified by further distillation and chromatography on silica gel amounted to 10-32%, calculated for the tertiary chlorides (III) introduced into the Grignard-Wuertz reaction. Thus,

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Synthesis of Hydrocarbons.

LXXI. Synthesis of the Dineoalkyls $C_{12}H_{26}$ - $C_{14}H_{30}$

3,3,6,6-tetramethyl octane and the hitherto unknown
3,3,6,6-trimethyl nonane, 2,3,3,6,6-pentamethyl octane,
and 4,4,7,7-tetramethyl decane were synthesized. There
are 2 tables and 9 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: July 17, 1958

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SOV/20-126-3-36/69

5(3)

AUTHORS:

Shusherina, N. P., Levina, R. Ya., Dmitriyeva, N. D.

TITLE:

δ -Lactones (δ -laktony). 3-Bromopyrones-2 (3-bromopyrony-2)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3,
pp 589 - 590 (USSR)

ABSTRACT:

As is known (Refs 1-4), the bromination of the pyrones-2 leads to a formation of 3-substituted pyrones. The authors produced a number of 3-bromopyrones-2 (not described in publications) from 5,6-dialkyl-pyrones-2 and from 5,6-cycloalcan-pyrones-2. They were synthesized by the method (Refs 5,6) previously developed by the authors. The yield amounted to 28-56%. 3-bromine-5,6-dimethylpyrone-2 (I), 3-bromine-5-ethyl-6-methylpyrone-2 (II), 3-bromine-5,6-cyclopentane-pyrone-2 (III) and 3-bromine-5,6-cyclohexane-pyrone-2 (IV) were produced. It was first found out that the 3-bromopyrones-2 - like the pyrones-2 themselves - easily undergo the reaction of the diene synthesis with the maleic acid anhydride. They form double adducts (V-VIII) with a 50-80% yield. These correspond to the addition of 2 molecules of maleic acid anhydride in the bromopyrone molecule (see Scheme). Table 1 shows the constants, yields and analytic

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δ -lactones. 3-Bromopyrones-2

results of the produced 3-bromopyrones-2 after a recrystallization from alcohol. Table 2 indicates the melting temperatures, yields and analyses of the adducts V-VIII of the 3-bromopyrones-2 with the maleic acid anhydride. There are 2 tables and 6 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 18, 1959, by A. N. Nesmeyanov, Academician

SUBMITTED: February 14, 1959

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5 (2)

AUTHORS:

Levina, R. Ya., Shabarov, Yu. S.,
Kuz'min, M. G.

SOV/20-127-1-29/65

TITLE:

Cyclopropanes and Cyclobutanes (Tsiklopropany i tsiklobutany).
On the Decomposition of Alkyl-tetrahydropyridazines (O razlozr-
enii alkiltetragidropiridazinov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 111 - 114
(USSR)

ABSTRACT:

The authors continue here their investigations of the synthesis of aryl-cyclobutanes (Refs 1,2) by the decomposition of aryl-tetrahydropyridazines and try to use this method for the synthesis of alkyl-cyclobutanes. 3-methyl-tetrahydropyridazine was produced by the hydrolysis of the adduct of azo-dicarboxylic ester with piperylene. The latter contains 2 NH-groups, which indicates that the double bond does not shift towards the nitrogen in the hydrolysis as is the case with the azo-dicarboxylic esters with aryl-butadienes (Refs 2,3), but remains in position 4 (see Scheme). Though the authors failed to produce 3-methyl- Δ^2 -tetrahydropyridazine by hydrolysis, it could be expected that the above-mentioned double bond shifts nevertheless

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Cyclopropanes and Cyclobutanes. On the Decomposition SOV/20-127-1-29/65
of Alkyl-tetrahydropyridazines

towards the nitrogen under the difficult conditions of the decomposition and that the compound mentioned is produced. The latter could then be caused to decompose into methyl-cyclobutane and nitrogen (similarly to 3-phenyl- Δ^2 -tetrahydropyridazine) (Refs 1,2). This failed, however; 3-methyl- Δ^4 -tetrahydropyridazine decomposed with (at 200-250°) or without catalysts (at 300-350°) only into piperylene, nitrogen, and hydrogen (see Scheme). Two reaction ways can be assumed: (a) The biradical I, which is produced as an intermediate, is transformed only into diene. (b) The initial substance decomposes into piperylene and diimide NH—NH which decomposes immediately into N and H. The decomposition of the initial substance into N and piperylene itself in the case of the effect of weak oxidizing agents speaks in favor of the assumption (a). This decomposition confirms the remaining of the double bond in position 4. Similar results were obtained in the decomposition of 3,4,5,6-bis-cyclopentane- and 3,4,5,6-bis-cyclohexane- Δ^4 -tetrahydropyridazines which contain 2 NH-groups each. They form dicyclopentenyl and dicyclohexenyl besides other reaction pro-

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